

Automatic
Self-Heating 

Li Time

12.8V 100Ah

Smart  **x Group**  **24**
BLUETOOTH 5.0 and More

PRODUCT (100A BMS) **MANUAL**

Lithium Iron Phosphate (LiFePO₄) Battery

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PRODUCT OVERVIEW

12.8V 100AH BATTERY

Operating Voltage: 12.8V

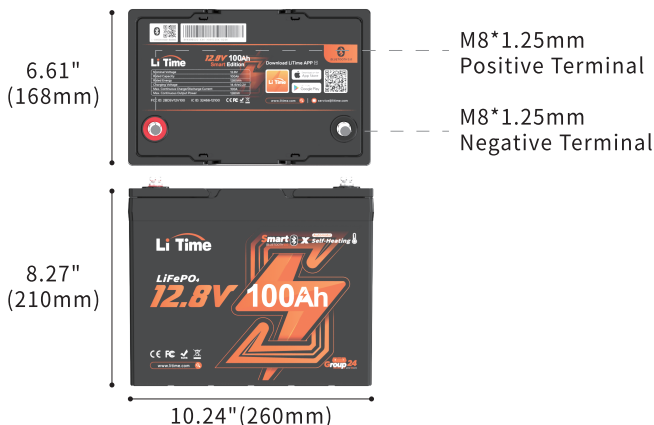
Charging Voltage: $14.4V \pm 0.2V$

Recommended Charge Current: 20A (0.2C)

Required Minimum Charge Current (for Heating Function): 10A

Max. Continuous Discharge Current: 100A

Max. Continuous Output Power: 1280W

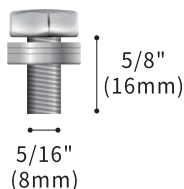


ADDITIONAL COMPONENTS

M8- 5/8" (16mm) Terminal Bolts

Recommended terminal torque: 106.2 to 123.9 inch · lbs / 12 to 14 N · m.

The terminal bolts are used to secure multiple cable lugs to a single battery terminal. The bolts can be replaced with M8 bolts of other lengths based on actual needs.



Insulating Caps for Bolts

Cover the battery with the insulating caps after tightening the bolts. If the cap melts, stop using the battery and reach out to service@litime.com for further analysis.

BATTERY PARAMETERS

Cell Type	LiFePO ₄
Nominal Voltage	12.8V
Rated Capacity	100Ah
Energy	1280Wh
Internal Resistance	≤40mΩ
Cycle Life	≥4000 times
Battery Management System (BMS) Board	100A
Charge Method	CC/CV
Charge Voltage	14.4±0.2V
Recommended Charge Current	20A (0.2C)
Required Minimum Charge Current for Heating Function ^①	10A
Max. Continuous Charge Current	100A
Max. Continuous Discharge Current	100A
Surge Discharge Current	500A@1 second

Max. Continuous Output Power	1280W
Dimension	L10.24*W6.61*H8.27 inch
	L260*W168*H210 mm
Housing Material	ABS
Recommended Terminal Torque	106.2 to 123.9 inch · lbs / 12 to 14 N · m
Protection Class	IP65
Temperature Range	Charge: -20°C to 50°C / -4°F to 122°F
	Discharge: -20°C to 60°C / -4°F to 140°F
	Storage: -10°C to 50°C / 14°F to 122°F
Heating Temperature	Charge: -20°C to 5°C / -4°F to 41°F
Approx. Heating Time @10A	70-90mins (From -10°C / 14°F)
	100-150mins (From -20°C / -4°F)
Low Temperature Charging Protection(LTCP) Function ^②	Yes
Resume Charging Temperature Under LTCF	5°C/41°F (Battery Temperature)

① The charge current should be greater than 10A to activate the automatic self-heating function.

② This product supports Low Temperature Charging Protection (LTCP), where the BMS stops battery charging when the battery temperature falls below 0°C/32°F and resumes charging when the temperature rises above 5°C/41°F.

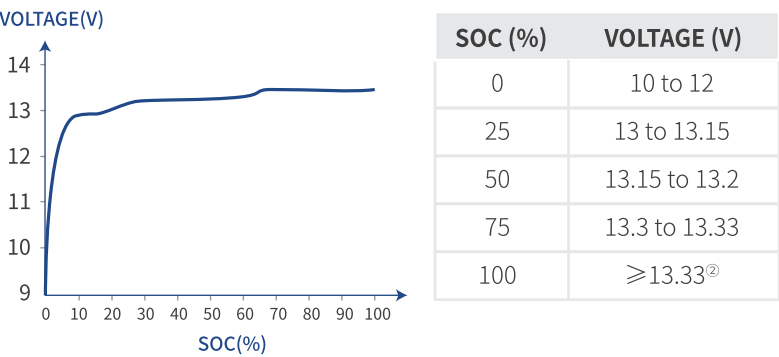
HOW TO ESTIMATE THE BATTERY CAPACITY

STATE OF CHARGE (SOC)

The battery capacity could be roughly estimated by its resting voltage (not charging/discharging voltage).^①

Since the voltage of each battery is slightly different, and the voltage measurement is affected by the measuring instrument, ambient temperature, etc., the following parameters are for reference only. The actual SOC of the battery is based on the discharge capacity under load.

Resting Voltage:The voltage is measured after the battery has been disconnected from the charger and loads with zero current, and left alone for 3 hours.



- ① Based on the characteristics of LiFePO₄ batteries, the voltage measured by all LiFePO₄ batteries during charging/discharging is not the real voltage of the battery. Therefore, after charging/discharging and disconnecting the battery from the power source, the voltage of the battery will gradually drop/increase to its real voltage.
- ② After this battery is protected from overcharge, the tested battery voltage (not the real voltage) will be lower than the real voltage. To calculate the SOC (%), add 0.5V to 0.7V to the tested battery voltage.

SERIES / PARALLEL CONNECTION

THE PREMISE OF CONNECTION

To connect in series or /and parallel, batteries should meet the below conditions:

- a. identical batteries with the same battery capacity (Ah) and BMS (A);
- b. from the same brand (as lithium battery from different brands has their special BMS);
- c. purchased in near time (within one month).

LIMITATION FOR SERIES/PARALLEL CONNECTION

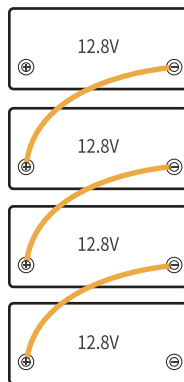
Support connecting up to 16 identical batteries for up to:

4 in series as 48V (51.2V) battery system or

4 in parallel as 400Ah battery system.

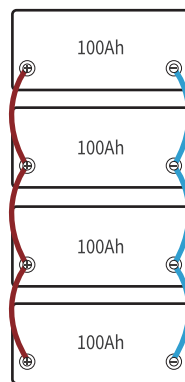
Series Connection

48V(51.2V) 100Ah

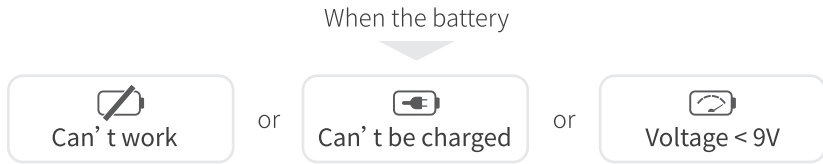


Parallel Connection

12V(12.8V) 400Ah



WHAT TO DO WHEN THE BATTERY STOPS WORKING?



It has 85% chances that BMS has shut it off for protection, and you could try **one of below ways** to activate the battery.

GENERAL STEPS

If the BMS has cut off the battery for protection, follow the below steps to activate it.

Step
1

Cut off all the connections from the battery

Step
2

Leave the battery aside for 30mins

Then the battery will automatically recover itself to normal voltage (>10V) and can be used after fully charged.

If the battery is unable to recover itself after the above steps, please try activating by **ONE OF BELOW TWO METHODS.**

After activated (voltage > 10V) and fully charged by the normal charging method, it can be used normally.

Method ①

Use a charger with lithium battery activation function to fully charge the battery.

Method ②

Connect a controller that supports 12V LiFePO₄ battery charging to charge the battery for 3~10s in sunny daytime.

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